

Sanitary Facilities Construction Program for Indians and Alaska Natives

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THE health status of American Indians and Alaska natives today approaches that of rural dwellers in the United States 50 years ago. In 1958 the average age at death of an Indian was 40 years and of the Alaska native, 30 years, as compared with 62 years for the general population. Diseases of the alimentary canal (gastritis, duodenitis, enteritis, and colitis) rank seventh, higher than tuberculosis, as a cause of death among Indians, excluding those in Alaska. The death rate from these diseases among Indians is seven times higher than for the general U.S. population.

Nearly one-fourth of all Indian deaths and more than one-third of all Alaska native deaths are of infants less than 1 year of age. Infant death rates are more than double those of non-Indian citizens, but this gap widens significantly in the 1- to 11-month age group, after the infant leaves the hospital and lives at home. For this group, the Indian death rate is five times and the Alaska native rate nearly six times that of the non-Indian population. (Subsequently, in this paper the term "Indians" means all Indians, Eskimos, and Aleuts who are beneficiaries of the Public Health Service; "Alaska native" is limited to beneficiaries residing in Alaska.)

The major causes of these infant deaths are respiratory, digestive, infective, and parasitic diseases, all related to the home environment.

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In general, the sanitation conditions responsible are lack of adequate water of safe quality, accessible and protected, for household use; disposal of wastes in an unsanitary manner, often promiscuously; improper preparation and storage of foods; small, poorly constructed, and overcrowded housing; and lack of basic sanitary practices and personal hygiene in the home.

Open ditches, creeks, ponds, and unprotected shallow wells are common sources of water on Indian reservations. Tens of thousands of Indians haul all water for domestic purposes for a mile or more, using as little as 1 to 3 gallons per capita per day. By contrast, the water consumption of the average urban resident is 50 to 60 gpcd, and rural dwellers living in homes with no inside plumbing use 15 gpcd.

Comprehensive environmental sanitation surveys of Indian reservations have shown that relatively few Indians have satisfactory facilities for the disposal of human wastes or refuse, and complete lack of facilities is not uncommon in a number of communities. Flies and other household insects are frequently a major problem in and about the home. Rodents are of less concern, but in some Indian communities they are a potential menace to health.

The deficiencies in environmental sanitation in village X (a composite example) are typical of conditions in Alaska native villages. The population of 200 lives in frame houses, usually banked with sod and frequently constructed in semisubterranean fashion. Some people have erected houses from square-hewn logs and banked them with moss. All houses are small, generally one room, and grossly overcrowded by any housing standards. They are damp

from condensation because they lack vapor seals. There are no dishwashing or handwashing facilities.

Water is collected from primitive rain-gutter systems on individual dwellings during the rainy month, but most water for household use is dipped directly from the slough nearby. In the winter, snow and ice are melted in the home.

Slop pails, emptied too close to the water source, and a few crude privies, located too close to the dwellings, are the means of disposing of human wastes. Dogs roaming the village or tethered nearby leave their wastes on the paths, at entrances to homes, and on the stored ice which is the winter water supply. Refuse is dumped in a nearby lagoon.

Food is stored in caches raised above ground level as a protection from animals, but freshly killed seals kept inside some homes serve as a source of fuel and food. Fish are cured on racks near the home, but the process often fails to destroy the fish tapeworm.

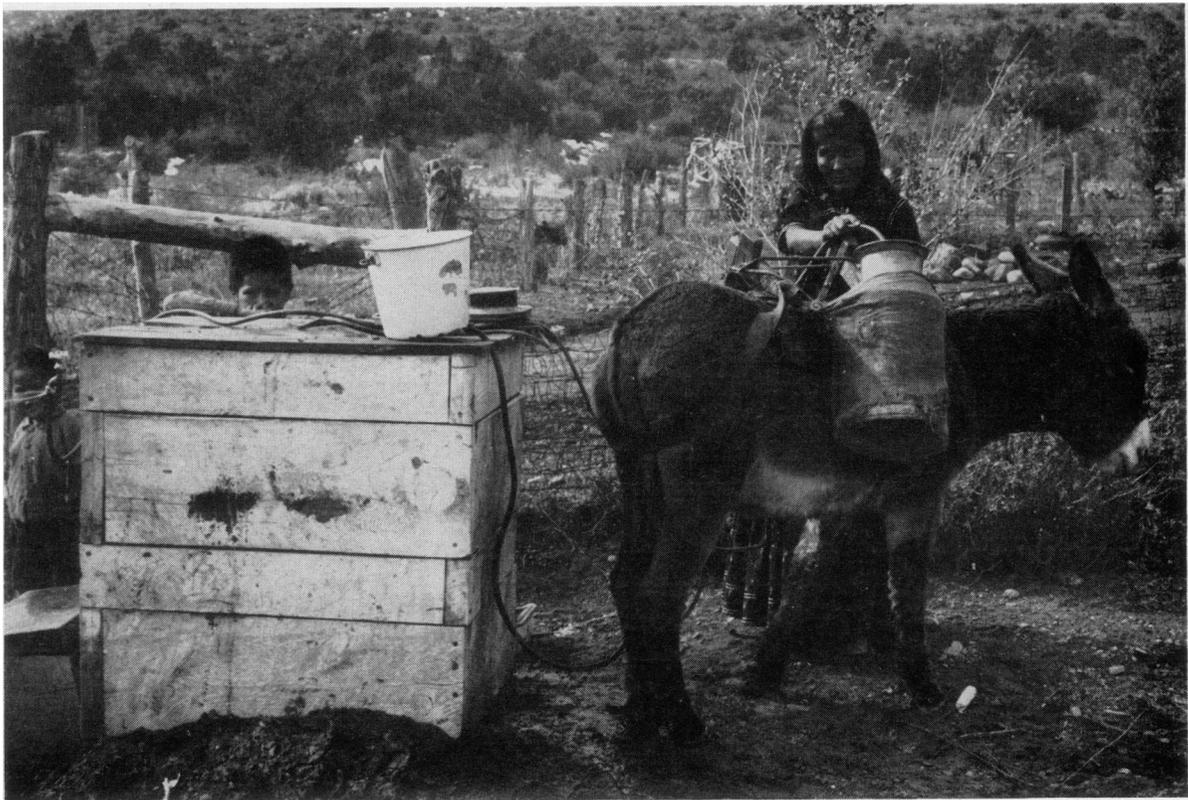
This is not an indictment of these stalwart

people, who are eking out a living under rugged conditions. Through their own ingenuity and effort the people of many villages have improved sanitation; but the correction of such gross deficiencies is not solely a matter of will, or of money, materials, and application of engineering technology.

Other factors—past treatment of various Indian groups by governmental agencies and by people of the other races, cultural patterns, language barriers, limited education, and ability of the local economy to maintain and utilize improvements—must also be considered.

Past Efforts

Initial efforts to improve sanitation on Indian reservations and in Alaska native villages were limited to sporadic surveys, inspections of conditions, and occasional assistance in the correction of glaring deficiencies through a temporary governmental program or a specific congressional appropriation. The first sustained Federal environmental sanitation



Apache Indians get water from a protected source, haul it home by burro



Indians assist in well drilling for a new water supply for Hickiwan on the Papago Reservation in Arizona

program for Indians in States other than Alaska began in 1952 when the Federal Government employed 12 Indian health workers. This limited beginning was given substantial impetus after responsibility for Indian health was transferred from the Bureau of Indian Affairs, Department of the Interior, to the Public Health Service in 1955. The Environmental Sanitation Branch, Division of Indian Health, now includes a staff of 143, exclusive of contract personnel.

Health education was emphasized. Indians were employed as sanitarian aides and trained in the basic elements of sanitation and health education techniques. They were assigned to reservations to work with their own people in improving sanitary practices in the home and in the community. Later, field engineers and professional sanitarians provided support and guidance.

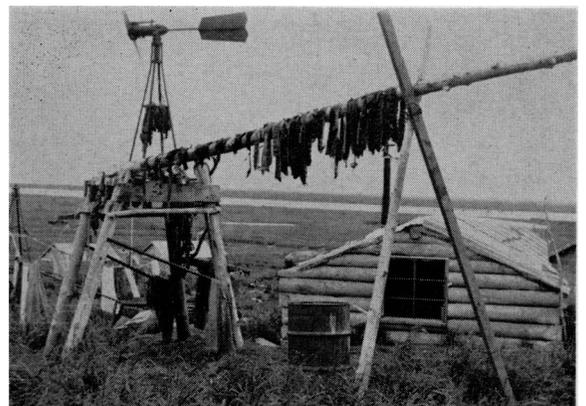
The aides have conducted house-to-house sanitary surveys and stressed "do it yourself" home sanitation projects. Indians have actively participated in community sanitation demonstration projects. Within the resources available to the Indians, sanitary facilities have been improved with technical help from the Public Health Service.

In Alaska, a similar program was initiated in 1955 under a contractual arrangement with the Territorial department of health (now Alaska Department of Health and Welfare). The sanitarian aides, Indians and Eskimos, are only part-time employees who, like their fellow villagers, must supplement their income by seasonal hunting and fishing to survive in this rigorous climate. Sanitarians located at Bethel, Nome, Kotzebue, and Fairbanks visit the villages periodically and supervise the work of the aides. Training courses for the aides have been given the greatest emphasis under this program. When they return to their villages they stress individual home sanitation, disinfection of raw water, conversion of oil drums to sanitary household water storage units, improvement of dog tethering, and the sanitary disposal of wastes.

It has been apparent, however, that an educational and motivational approach is not enough to solve many basic sanitary facility needs which are beyond the available resources of the Indian community. This led to the enactment, July 31, 1959, of Public Law 86-121, popularly known as the Indian Sanitation Facilities Act.

Public Law 86-121

Public Law 86-121 authorizes the Surgeon General of the Public Health Service to (a) make agreements with Indians and others relative to contributions toward facilities projects



Drying racks, like these at Scammon Bay, Alaska, are used to cure fish, but the process often fails to destroy the fish tapeworm

and responsibilities for their maintenance and operation, (b) acquire land and water rights, (c) "construct, improve, extend, or otherwise provide and maintain essential sanitation facilities, including domestic and community water supplies and facilities, drainage facilities, sewage- and waste-disposal facilities, together with necessary appurtenances and fixtures for Indian homes, communities, and lands," and (d) "transfer any facilities provided . . . to any State or subdivision or public authority thereof, or to any Indian tribe, group, band, or com-

munity, or in the case of domestic appurtenances and fixtures, to any one or more of the occupants of the Indian home served thereby."

The act directs the Surgeon General to consult with and encourage the participation of the Indians concerned and States and political subdivisions thereof in carrying out its provisions. It also authorizes the Secretary of the Interior to transfer to the Surgeon General certain interests and rights in federally owned or Indian-owned lands, with appropriate safeguards for the Indians.

Initiation of Typical Project

Following are the steps in initiating a typical project.

1. The Indian beneficiary group sends a written project proposal to the Indian health area office through the nearest Public Health Service Division of Indian Health facility. (The Service works through official Indian groups and does not accept project proposals from individual beneficiaries.)

2. The area sanitary engineer consults with the Indians, Bureau of Indian Affairs, and State and local health officials and assists the Indian group in developing a long-range plan to meet the sanitation needs of the reservation or community.

3. A Public Health Service engineer discusses the project with the beneficiaries and develops a project summary including a brief statement of existing conditions, justification for the project, a brief outline of the project with engineering data and cost estimates, and comment on how the facilities can be maintained and operated. He will also obtain information necessary for establishing a priority for construction.

4. At the area office the following criteria determine the project priority for construction:

(a) Urgency of health need of Indian population in locations to be served.

(b) Engineering and economic feasibility.

(c) Ability and willingness of Indian tribes, communities, or groups to assume or share with other public bodies the responsibility for maintenance and operation of sanitary facilities to be provided.

(d) Ability and willingness of Indian tribes, communities, or groups to participate by contributing labor, materials, equipment, service, or funds.

(e) Relationship of project to broader plans for sanitation improvement developed or approved by Indian tribes, communities, or groups.

(f) Enactment or applicability of enforceable sanitary laws, ordinances, or regulations calculated to aid in accomplishing the purposes of the construction in the area to be served by the facility.

5. The project proposal, project summary, and project priority are then forwarded to headquarters in Washington, D.C., for review, consolidation with projects from other areas, budgeting, and approval.

6. After approval by headquarters, the area office staff appoints a project engineer, negotiates final agreements with Indians and others, acquires land and water rights, and prepares final plans and specifications.

7. Plans are forwarded to the State health agency for review and comment.

8. Construction is undertaken either by contract or directly by the Public Health Service using contributed labor.

9. Concurrently with project construction, instruction is undertaken in the beneficiary community on utilization, maintenance, repair, and protection of the new sanitary facilities.

10. When construction is finished, operators of the facilities are trained, and after an initial period of operation, the completed facilities are transferred to the eligible group or public body in accordance with initial agreement.

As a general policy the Public Health Service has limited the authority under the act to maintain sanitary facilities under special conditions such as an emergency breakdown which is beyond the resources of the Indians to repair, or temporary operation of a newly completed community facility while Indian operators are being trained under a planned and phased arrangement. The Public Health Service role is one of technical assistance in setting up mechanisms under which the Indians, adjacent political subdivisions, or public authorities assume responsibility for operation and maintenance of completed facilities.

Studies (1) have demonstrated that marked reduction in the enteric diseases can be expected when safe water becomes readily accessible in the home and when human waste is disposed of in a sanitary manner. Control of insects and rodents and protection of stored water and foodstuffs can further improve the health level. Rough preliminary estimates of needed sanitary facility projects indicate that some \$35 to \$50 million will be required to meet the essential needs of our Indian communities. It is recognized further that these projects should be undertaken only after the beneficiary groups are willing to participate actively in the construction of facilities and to assume responsibility for operation and maintenance of the completed works.

Indian families and groups who are considered to be beneficiaries of the Public Health Service can participate in these projects. However, additional considerations will tend to limit the numbers who may benefit under a facilities construction program in contrast to one of services.

Implementation of the Act

Policies and procedures have been developed for implementing the construction program. They include responsibilities, functions, and relationships of various organizations and groups concerned; scope of projects which may be included; criteria for determining project priorities; guidelines for operation and maintenance of Indian sanitary facilities and for handling emergency situations; and step-by-

step procedures for development and conduct of a project.

The program is conducted on a decentralized basis through seven Indian health area offices located at Anchorage, Alaska; Aberdeen, S. Dak.; Billings, Mont.; Portland, Oreg.; Phoenix, Ariz.; Albuquerque, N. Mex.; and Oklahoma City, Okla. Joint planning with the Indian groups and with appropriate Federal, State, and local agencies is stressed. Indian participation through contributions of labor, funds, materials, and services is a basic part of the activity. Practicable maintenance and operation mechanisms are worked out in advance of project execution through agreements with the beneficiary group (see box).

In Alaska, it has been recognized for some time that practicable facilities for water supply and waste disposal in native villages must be adapted to the permafrost, climatologic factors, and the life and economy of the native population. The Division of Indian Health has financed studies of these conditions at the Arctic Health Research Center for the past 5 years. Some practicable methods are now available for jetting wells, for protecting water intake lines from freezing, and for storage of water. Additional information on the chemical and physical quality of Alaska waters is being obtained, and simple treatment methods for removal of iron from water are under further study. During the summer of 1960 a study of "readily available" ground water was conducted by a field crew in six native villages. Projects underway in 1961 include water supply and waste disposal facilities for Akiachak, Napaikiak, Napakiak, Tuntatuliag, and Tyonek.

In the Indian community of Hoonah, Alaska, special features of the act are being used to collect and dispose of refuse. Under an agreement with this community, the Public Health Service supplies a special collection vehicle and a bulldozer for operation of a sanitary landfill. Both vehicles were obtained from excess Department of Defense property at no cost to the Public Health Service. Hoonah transports the equipment and operates the collection service and disposal facility in accordance with recommended sanitary practices. Revenue from a

service charge to residents supports the operation. Incidentally, the bulldozer will also keep the streets cleared in winter so that refuse collection service may be maintained.

Conclusion

In conclusion, the sanitary facilities construction program for Indians is not an entitlement. It is an opportunity to meet a challenging health problem at home with dignity for the beneficiary groups. It stresses a

self-help approach and acceptance of responsibility by the beneficiaries for the continued operation and maintenance of completed facilities.

REFERENCE

- (1) Schliessmann, D. J., Atchley, F. O., Wilcomb, M. J., Jr., and Welch, S. F.: Relation of environmental factors to the occurrence of enteric diseases in areas of eastern Kentucky. PHS Pub. No. 591 (Pub. Health Monogr. No. 54). Washington, D.C., U.S. Government Printing Office, November 1958.

Rheumatic Disease Studies

Leading specialists from the United States and abroad presented the latest findings on arthritis and rheumatic diseases at a meeting of the American Rheumatism Association in Dallas, Tex., December 9 and 10, 1960.

A study at the Cornell Medical Center, New York City, strengthens the suspicion that predisposition for the severe skin disease, scleroderma, frequently confused with rheumatoid arthritis and characterized by atrophy and hardening of the skin and other soft tissues, may run in families.

In clinical and serologic tests of 91 blood relatives of 24 patients with scleroderma, Dr. Josue M. Corcos, Dr. William C. Robbins, Dr. Bernard Rogoff, and Dr. Ralph Heimer of the rheumatic disease department, Hospital for Special Surgery, found that while only one relative had some of the skin abnormalities encountered in the disease, 7 percent had rheumatoid arthritis. A significant number of the apparently healthy relatives exhibited a positive test for the so-called rheumatoid factor, a mysterious substance found in the blood of arthritics.

Eight of 24 (33 percent) scleroderma patients showed elevated gammaglobulin levels and anti-nuclear antibodies known to be specific for lupus erythematosus. Corcos and his co-workers concluded that these results supplied additional evidence for the close relationship between scleroderma and other diseases of connective tissue and suggested the

occurrence of scleroderma in families where a genetic predisposition for abnormalities of immune systems exists.

The influence of cortisone and other steroid medications on the course of peripheral neuropathy, a nerve disease which frequently accompanies rheumatoid arthritis, was reported by Dr. Richard H. Ferguson and Dr. Charles H. Slocumb of the Mayo Clinic, Rochester, Minn., after a long-range study at the clinic.

Ferguson and Slocumb reported no examples of polyneuropathy were found in 5,188 rheumatoid arthritis patients in the presteroid period, 1945-49, but 61 cases were discovered between 1959-60 when steroids were widely used to suppress temporarily joint inflammation characteristic of rheumatoid arthritis. The Mayo Clinic team found that in a patient habituated to large doses of corticosteroids relative adrenal insufficiency as a result of stress or dosage reduction may set the stage for the appearance of polyneuropathy.

A report by Dr. John Abruzzo and Dr. Charles L. Christian of the Presbyterian Hospital in New York City sheds new light on mysterious substances found in the blood of patients suffering from rheumatoid arthritis and related rheumatic diseases.

These scientists have produced in laboratory animals a blood substance resembling the human rheumatoid factor.